

Group work in physical education

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Abstract

Student group work is a central feature of many contemporary pedagogical approaches to teaching physical education. Despite this proliferation, our understanding of the teaching-learning dynamics inherent in group work remains limited and has tended to be under-theorized. The purpose of this paper was to examine different theoretical approaches to group work in order to identify similarities and differences and consequently provide insights and recommendations into ways of using group work as a pedagogical strategy. Four theoretical approaches to group work models were described in detail with brief empirical examples used to illustrate aspects to which each approach draws attention. The examination demonstrates conceptual overlap, elaboration and distinctions between the theoretical approaches related to: (i) content knowledge; (ii) engaging learners; (iii) the teacher's role; and (iv) group composition. Meta-theoretical discussions of teaching strategies such as group work generate important discourse on the potential for the development of effective pedagogical practice.

Keywords: meta-theory, pedagogy, interaction, joint action, cooperation, status

Contemporary discussions concerning the nature of physical education have led to curricular and instructional innovation (Hastie & Casey, 2014; Kirk, 2013). Innovation has, in turn, been accompanied by a great deal of research examining the educational value of different approaches to teaching physical education (Harvey & Jarrett, 2014; Hastie, de Ojeda & Luquin, 2011; Miller, 2015). Even a cursory examination of this research reveals that student group work – broadly defined as students working with peers beyond the immediate presence of teachers – is a central feature of many of these approaches (e.g., Sport Education: Siedentop, Hastie & van der Mars, 2011; Cooperative Learning: Dyson & Casey, 2014). Further, student group work has been associated with learning outcomes across a variety of different domains including the physical, cognitive, affective and social (Casey & Goodyear, 2015; Darnis & Lafont, 2015; Lafont, 2012).

Since Ward and Lee's (2005) claim that group work in physical education has tended to be under-theorized, a number of scholars have investigated how learning theories can be used to interpret the complex dynamics of teacher and student-interactions (see for example, Barker & Quennerstedt, in press; Lafont, Proeres & Vallet, 2007). TEXT DELETED Learning theories not only have the potential to explain pedagogical practice but can be used to guide pedagogy (Quennerstedt, Öhman & Armour, 2014) and may be useful for predicting future student learning.¹ As a point of departure for this paper, we take an observation of influential educational theorist Robert Slavin concerning learning theory. Almost 25 years ago, Slavin (1992) claimed that student group work is informed by multiple and diverse theories. He proposed that while researchers often make assumptions about learning from one specific theoretical viewpoint, in order to build a sound understanding of group work in practice, it is

¹ Unlike pedagogical models which are prescriptive (Kirk, 2013), the main purpose of learning theories is to provide ways of thinking about how learning takes place (Quennerstedt, et al., 2014). Learning theories can help to inform pedagogical models but they need not be elaborated into a set of specific learning outcomes, teaching strategies, educational justifications and so forth.

necessary to cross disciplinary and theoretical boundaries. Slavin (1992) suggested moreover, that no one theory will be shown to be “demonstrably correct” in all circumstances (p. 163) and that to develop a perspective on group work that is relevant to a range of learning contexts, it is useful to explore the interconnectedness between theories (see also Slavin, 1996; 2015).

Literature on group work in physical education and education more generally has tended not to heed Slavin’s calls. With the exception of some work based on the Cooperative Learning model (Darnis & Lafont, 2015) there exists very little PE research that has explored the interconnectedness between theories of group work. The purpose of this paper is to provide examples of theoretical interconnectedness along with insights into how an understanding of this interconnectedness can improve research and practice. Examining interconnectedness can not only help identify the unique features of particular theories but it also provides an opportunity to consider links between theory and practice. For academics operating in a praxis-oriented field such as physical education, translating multiple theoretical approaches into practical teaching implications is a useful exercise. In this paper, we examine four theoretical approaches that have been used to investigate student group work. These approaches have been selected as they each emphasize different aspects of the ternary system of group work (i.e. the teacher, learner and content) and thus provide the potential for discussion of the both the interconnectedness and differential aspects of this pedagogy. In each case, we describe basic assumptions and underpinning concepts. The four approaches are: (1) joint action studies in didactics approach; (2) a symbolic interactionist approach; (3) a socio-constructivist approach with focus on member status; and, (4) a group-based incentives approach. Along with descriptions, we provide practical illustrations of how the theoretical approach has been used to make sense of group work. In the second part of the paper, we turn

our attention to the interconnections between these approaches, focusing specifically on: (i) content knowledge; (ii) engaging learners; (iii) the teacher's role; and (iv) group composition.

Theoretical Approach 1. Joint Action Studies in Didactics (JASD) to Understand

Student Learning

The JASD framework belongs to the French *didactique* tradition, which examines the triadic system of teacher, student, and knowledge taught within classroom interactions (Allal, 2011). The framework describes the process of didactic transposition – essentially how content knowledge intended to be taught by the teacher is transformed into the actual knowledge learned by students. Within didactic transposition, teachers and students co-construct forms of knowing while knowledge itself is transformed through the pedagogical acts of communication and interpretation (Amade-Escot, Elandoulsi & Verscheure, 2015). This idea of an evolving co-construction of knowledge has been used in physical education research to account for descriptions of learning within peer-assisted learning tasks (e.g. Hennings, Wallhead & Byra, 2010).

A JASD approach accounts for the situated nature of teaching and learning processes and aims to capture the enacted curriculum in detail. It takes into account the joint action of the teacher, the students and the specific knowledge content as interrelated instances (Amade-Escot, 2000). The notion of 'joint action' suggests that knowledge is co-produced by the teacher and students in culturally-bounded contexts (Amade-Escot et al., 2015). However, joint action does not mean that participants have the same goals rather that there are explicit and implicit negotiations that occur between teacher and learners around the content. Studying and describing these transactions provides a sophisticated understanding of the dynamics of the whole teaching-learning process.

To account for teacher and students' joint actions with regard to particular knowledge, the JASD framework proposes a set of concepts and analytical tools. Two primary concepts

are the didactic milieu and didactic contract. The didactic milieu refers to the material resources, symbolic representations and social organization provided by the teacher as a set of evolving conditions from which knowledge and associated meanings are intended to be construed through joint actions. The didactic contract refers to teachers' and students' specific expectations related to the content knowledge to be studied (Sensevy, 2007). These reciprocal expectations resemble a "contract" but may misalign as content development progresses causing breaches in the didactic contract. The theoretical aim of the JASD is not to evaluate the quality of the didactic contract, but to describe the mechanisms through which the teacher and students negotiate their respective expectations (Amade-Escot, 2000).

Changes in the didactic milieu and didactic contract and thus 'joint action' are described using three analytical tools: mesogenesis, chronogenesis and topogenesis. Mesogenesis refers to changes in the didactic milieu and describes the process by which, over time, the didactic milieu is reorganized. Chronogenesis refers to the genesis of the didactic time and describes the evolution of the content knowledge as it unfolds during the joint action. Chronogenesis is related to the pace of content development which may progress, accelerate or stagnate during didactic interactions. Topogenesis refers to how the teacher and students share respective responsibilities during interactions to produce content knowledge. Importantly, the threefold set of geneses descriptors evolve in concert with every stage of mesogenesis corresponding to a topogenetic state and a chronogenetic state with regard to the content knowledge at stake (Verscheure & Amade-Escot, 2007).

The following empirical episode provides an example of the use of JASD to describe the emergence of the didactic contract during student interaction in a cooperative group task (AUTHORS OMITTED FOR ANONYMOUS REVIEW). The example illustrates how: (i) student leaders within the group modify the didactic milieu and reduce the pace of chronogenesis by causing a significant breach in the didactic contract, and (ii) teachers'

114 mesogenetic actions are required to re-align the didactic contract. The context for this episode
 115 is a gymnastics lesson where fifth grade students are working in teams of three to individually
 116 perform a crouched head stand for three seconds. Each student has a specific role in the
 117 group; that of coach, reporter or equipment manager.

118 **Practical Illustration 1.** Marata and Rua consistently over-balance, going into a forward roll
 119 due to an unequal base of support. “Move your hands back Marata” (Saki, coach). Marata
 120 overbalances for the third time in succession. Saki holds Marata’s legs to enable her to hold
 121 the crouch balance for three seconds. This mesogenetic action introduced by the student coach
 122 causes a breach in the didactic contract. Although holding her legs enables Marata to hold the
 123 crouch, it alters the chronogenesis, as it reduces the importance of having an equally
 124 distributed triangle base of support. Sue, the teacher, then intervenes, “Remember coaches, I
 125 don’t want you to hold their legs while they are attempting the crouch balance”. This
 126 mesogenetic action moves the teacher to a higher topogenetic position as she adds a task
 127 constraint that moves the chronogenesis forward to the teacher’s didactic intent. The didactic
 128 milieu is modified in the interactions permitted between the student coach and the peer
 129 performers. Rui holds his balance for two seconds and then overbalances. “Keep your elbows
 130 out Rua” (Saki, coach). This mesogenetic action by the coach again caused a breach in the
 131 didactic contract by encouraging a more linear base of support between the hands and head.
 132 This breach was recognized by the teacher who introduced a new mesogenetic action, “All
 133 groups make sure that your teammates are making a right angle with your elbows, and rest
 134 your knees on your elbows to hold the balance” (Sue, teacher). This teacher action served to
 135 re-align the didactic contract with both Marata and Rui being consistently successful at resting
 136 knees on their elbows to hold the crouch balance for three seconds.

137 This example highlights how the JASD framework enables the interpretation of
 138 content-specific interactions that occur during group work. It accounts for the

interdependence of classroom actions on the one hand, and the cultural contexts in which teacher and student joint action occurs on the other. The use of cooperative group work involves the purposeful devolution of content-related decision-making to students. As peer coaches, students are placed in a higher topogenetic position as they are expected to formulate interactions that include error detection, diagnosis, and some level of remediation for peer performance. This layer of student interpretation causes an increase in the frequency of breaches in the didactic contract and subsequently a more dynamic evolution of content. The dynamic nature of the process can involve periods of acceleration and stagnation in student learning of content.

Theoretical Approach 2. Symbolic Interactionist Theory: Epistemic Ecologies, Positions and Trajectories in PE

Symbolic interactionism has its roots in pragmatism (Mead, 1934). From this perspective, social interaction is carried out with different ‘resources’ such as talk, gesture, posture and stance (Goodwin, 2007; Streeck, Goodwin & LeBaron, 2011). When looking at real-life situations, such resources are investigated in terms of their consequences within the specific situation (Hutchins & Nomura, 2011). A baby’s cry for example, might be examined as an action that leads to the baby being picked up by a parent rather than a signal of emotional distress. This *consequentiality* is related to the sequential nature of interaction – as individuals act, they present possibilities for their own and others’ next actions (Goodwin, 2000). Interactionist approaches also acknowledge the importance of: (i) material environments (Goodwin, 2013) which affect people as they interact, and (ii) the social nature of actions since intended readings must be communal in order for them to work. Within social situations individuals create local environments (Goodwin, 2007, p. 53), working together in worlds of shared perception and action. Goodwin (2007) suggests that this can often be seen in actors’ bodies as they align their bodies and focus their talk and action on the same object.

In a recent paper, AUTHORS OMITTED FOR ANONYMOUS REVIEW used three specific concepts from symbolic interactionism to examine group work in PE: *epistemic ecologies*, *epistemic positions* and *learning trajectories*. Epistemic ecologies provide a way of thinking about how knowledge is organized in a group. It places importance on the task and the knowledge that the group can assemble in situ to complete the task. In PE, groups create different epistemic ecologies as group members bring their unique experiences to the task and combine their knowledge in different ways. Within epistemic ecologies, participants take on different *epistemic positions* (Goodwin, 1981). Individuals act in ways that situate them as ‘knowers’ or ‘unknowers’ relative to one another. A person might ‘know a lot’ but if they do not display the appropriate actions within their local ecology, they may not assume a knower position. In this respect, positions are ‘acted out’ or ‘embodied’. Moving from an unknowing to a knowing position – relative to others in the group – is expressed by the notion of a *learning trajectory* (Melander, 2012). Goodwin (2013) proposes that learning occurs as group members participate in epistemic ecologies and begin to “understand each other in just the ways that make possible the accomplishment of ongoing, situated action” (p. 8).

Practical illustration 2. As an illustration of these concepts in action, we describe a case that took place during a golfing lesson. In this specific situation, one boy was attempting to produce a chip shot with a practice ball and was being helped by two other boys [TEXT DELETED]. The chip shot, selected and demonstrated at the start of the lesson by the teacher, structured the epistemic ecology in which the three boys acted. Knowledge could be enacted either by performing the shot or by recalling procedural information from the teacher’s demonstration. One boy had already demonstrated a successful shot and within the ecology had taken on an epistemic position of ‘knower’ (referred to as knower-a, below). The boy holding the club had not performed the shot and was taking on an ‘unknower’ position. The

188 third boy in the group (described below as knower-b) constructed an epistemic position
 189 between the knower and the unknower.

190 Using this framework, it is possible to look at the kind of actions involved with each
 191 position in more detail. Knower-a was able to move close to the unknower, demonstrate
 192 aspects of the shot, adjust the golf club and the unknower's wrists so that the technique could
 193 be attempted, and provide continual verbal instruction and commentary during the attempt.
 194 The unknower asked questions, oriented himself so that the others could monitor his attempts
 195 with the club, and adjusted his actions in line with the comments of his colleagues. Knower-b
 196 engaged in the same kinds of activities as knower-a but provided less advice and did not move
 197 as close to the unknower as the knower. In each case, positions were mutually supporting –
 198 both the unknower and knower-b let knower-a speak more, take the club, and demonstrate. In
 199 this respect, each position was granted by the other two participants.

200 Local acknowledgement of positions was significant in terms of the unknower's
 201 epistemic trajectory. When he finally attempted to strike the ball, he missed twice. Each
 202 attempt constituted a chance for the unknower to enact knowledge so both the epistemic
 203 structure of the group and his own epistemic position were at stake. On missing the ball, the
 204 unknower claimed that he was simply taking practice shots and was not really trying to hit the
 205 ball. For the other two participants however, the misses confirmed his position as an
 206 unknower. Knower-b immediately provided more advice, suggesting that the hitter was trying
 207 to strike the ball too hard. After more unsuccessful attempts, the unknower handed the club to
 208 knower-b without having changed his position within the epistemic ecology of his group.

209 In sum, the aspects of symbolic interactionist theory presented here draw attention to the
 210 ways in which knowledge is central to structuring group work. In the example presented, we
 211 can see how knowledge of a golf shot provided the focus of the students' interactions, that the
 212 students' own knowledge of the shot led the students to take on different positions relative to

one another (and engage in a set of actions and behaviors deemed appropriate to those positions), and provided the ‘currency’ through which students could change their positions within the group – referred to above as trajectories.

Theoretical Approach 3. The Role of Status and Privilege during Group Work

Constructivist and socio-constructivist approaches to group work suggest that learning is a process of meaning making derived from individual’s social experiences (Brooks & Brooks, 1999; Vygotsky, 1978). Of course, when students enter group work situations, they bring with them a range of skills and knowledge as well as different expectations of others within the group. Issues related to status can have marked effects on learning. Cohen (1994) has explored the role of status characteristics during group interactions extensively. She defines status as “socially evaluated attributes” that can alter power, interaction, and opportunities within groups (Cohen, 1994, p. 24). According to Cohen, status is not fixed, but rather is unique to the setting. Status has been shown to be related to competence (Barker, Quennerstedt, & Annerstedt, 2015a), gender (Goodyear, Casey & Kirk, 2014), and economic level and attractiveness (Brock, Rovegno & Oliver, 2009). Importantly, and in light of Rovegno and Dolly’s (2006) contention that equitable group participation is essential to constructing meaning and an important precursor to learning, status can result in inequitable interactions among its members and can potentially be exploited to oppress or alienate other members of the group (Brock et al., 2009).

Practical illustration 3. In the following scenario, four fifth grade students are working together during a Sport Education season of an invasion game, Pinball. The game is played with one ball on a rectangular court and the aim is to knock down six bowling pins on the opposing team’s end line. Teams are allowed to arrange their pins in any formation along their end line before play begins. The focus team for this illustration (the Soaring Falcons) includes two high status and two low status players. Lucas has high status, being very skilled

and captain of the school soccer team. Amber, who has average skill, also has high status by being very popular in school. Janie has low status, being of average skill and quiet. Jacob, a straight-A student has low status and low skill level.

At the beginning of Game 1, Amber places the pins in a bowling formation on the center of the end line without consulting her team. Jacob has watched older students play this game on several occasions during an afterschool program his mother directs, and suggests that the pins be spread out. Amber does not respond and play begins. The Soaring Falcons lose. In Game 2, Amber positions the pins in a bowling formation again. Jacob once more suggests that the team spreads the pins out. Amber responds, “No, this is better. It’s like bowling, and that’s hard.” Jacob sighs. Again, the Soaring Falcons lose. Before Game 3 Jacob hurries to spread out the pins. Lucas notices and says: “Set them up like Amber had them.” Jacob responds, “But we will lose again” to which Lucas replies, “I will guard the pins and it’s easier if they are together.” Jacob’s shoulders sink. Quickly after play begins, an opponent’s shot ricochets off Lucas’ foot and all the pins tumble down causing the Soaring Falcons to lose a third time. For Game 4, Amber and Lucas decide they will both guard the pins. Neither Jacob nor Janie offer any alternative suggestions. The Soaring Falcons lose. Before Game 5, the final game of the regular season, Lucas remembers a multi-target drill from his soccer practice and suggests that they spread their pins out. Amber responds, “Great idea!” Jacob lowers his head and turns away from his teammates as they go to move the pins. The Soaring Falcons win! While Amber and Lucas are high fiving, Jacob looks to Janie and shrugs his shoulders. Janie responds, “I know it was your idea, but they never listen to us. Nothing we can do.”

From a purely constructivist standpoint, the Soaring Falcons applied *some* of their prior knowledge and as a result developed a new and improved game strategy, hence positive performance results. Socially, status dominated interactions within the group. High status

students were afforded privilege in decision-making and validated opinions, while low status students were silenced. In particular, Jacob learned his place in the group through a progressive series of inequities that limited and eventually extinguished his voice, as well as his desire for engagement. As previously suggested by Garcia-Lopez and Gutierrez (2015), examining the dynamics or process of knowledge construction during group work may provide useful insights into establishing equitable participation of group members, and therefore enhance learning.

Theoretical Approach 4. Incentives for Working Together

In this section, Slavin's (1991) perspective on Cooperative Learning is used to explore how group-based incentives, in the form of group goals, influence students' interactions and learning. Slavin (1996; 2015) argued that Cooperative Learning methods that rely solely on student interactions could not result in achievement. Consequently, Slavin's (1996; 2015) perspective on Cooperative Learning considers the interdependent nature of four major theories (motivation, social cohesion, cognitive-development, and cognitive-elaboration).

Slavin's (1996; 2015) model for Cooperative Learning is driven by a motivation perspective through a focus on group goals, or incentives (See Figure 1). Slavin (2015) focused on group goals predicting that they would provide students with the motivation to engage in the tasks as well as help others (Slavin, 2015). He hypothesized that this form of motivation would, in turn, drive cognitive processes and result in peer tutoring, peer modelling, elaboration, peer practice, or peer assessment; the types of interactions emphasized in cognitive-development theories (see for example, Piaget or Vygotsky) and cognitive-elaboration theories (Slavin, 2015). Slavin's perspective on Cooperative Learning also suggests that group goals can lead to group cohesion, where individuals care about other members and feel they have a responsibility for others. Cohesion can in turn, reinforce task motivation, encourage students' interactions and, consequently, enhance learning. Finally, the

cognitive processes embedded within peer-tutoring, peer modelling, and so forth can be more intrinsically rewarding and lead to task motivation and group cohesion, further demonstrating the interconnectedness between the concepts.

[Insert Figure 1 Here]

Practical illustration 4. The following empirical illustration seeks to elaborate on Slavin's model. The illustration focuses on a group of five students who were practicing shot putting. The group's goal was to achieve the greatest overall group improvement score in the class. The group scores were the sums of each individual member's improvement, calculated as the difference between their first and second throws. This illustration occurred during practice time between throws one and two. Interactions and behaviors are representative examples.

The group began with one person practicing at a time. In response to a student's suggestion, "shall we throw it together", the group split in half with three members of the group throwing and the other two members observing, swapping roles after each throw. Before each throw the observers explained and demonstrated how to perform the throw; "put your hand like that [student demonstrated], turn around in front, now turn and throw". They also made comments prior to individual performers' throws to help correct body positions: "touch it with your neck"; "in your fingertips". After throwing, the students raced to collect the shot and give it to their peers. During this time, the observers provided feedback; "to improve I think you should do more powerful steps so you go down more to move". In addition, the observers praised individual members and the efforts of the group: "wahoo, well done, go Gemma"; "good it's working"; "yeah! Let's go guys".

In this illustration students: (i) re-organized the group to complete throws together in smaller sub-groups; (ii) provided feedback; and (iii) praised individual and group efforts. It could be argued that these behaviors and interactions were driven by the reward embedded in the group goal i.e. to achieve the highest group improvement score. Indeed, Slavin (1996)

suggests that rewarding a group based on the group's collective performance from all members' individual performances creates a form of individual accountability. As such, an interpersonal reward structure in which group members will give or withhold social reinforcements (i.e. encouragement, feedback) in response to group members' task related efforts is developed. In this sense, the interpersonal reward may have motivated the students to practice the throw and to encourage and help each other. The ways that the students interacted also resembles peer tutoring (feedback), peer modelling (demonstrations), peer practice (throwing), and peer-assessment/correction (corrections). Further, the interpersonal reward could have encouraged social cohesion, as seen through the students choosing to 'throw it together'.

Slavin's model, therefore encourages us to consider the motivational influences embedded within tasks that may affect how students interact and, consequently, their learning. It shows how incentives, in the form of group goals, can be used to support and encourage students to interact. Although Slavin's (2015, p. 6) model is driven by a motivational perspective, it highlights how different concepts can be complementary rather than contradictory and become interconnected to inform optimal learning conditions.

Meta-theoretical Connections and Praxis Implications

We want to turn now to a discussion of the similarities, differences and interconnectedness between the theoretical approaches. Specifically, we consider some of the assumptions underpinning the approaches and the implications they have for pedagogical practice. We focus our attention on four areas: (i) content knowledge; (ii) engaging learners; (iii) teachers' roles; and (iii) group composition.

[Insert Figure 2 Here]

Content Knowledge

A symbolic interactionist approach encourages teachers to consider the kinds of knowledge that they are (re)producing in their lessons. Learning intentions for group work that are focused solely on the reproduction of ‘technical knowledge’ will demand different kinds of student interactions to a sport-culture oriented model, such as Sport Education (Siedentop et al., 2011), for example. A focus on technique-based knowledge also encourages students to concentrate on learning as an individual process. A culturally-oriented approach to knowledge is more likely to foster a collective approach to learning, where practices are central and knowledge is viewed in terms of participation. In either case, it seems particularly useful for practitioners to reflect on what it means to know and do as well as appropriate ways to engage students with the intended content.

In both the gymnastics and golf examples presented from the JASD and symbolic interactionist perspectives, the content focus of group work was the reproduction of specific individual technical skills (crouched headstand and golf chip shot). With respect to content, there is similarity between the ideas of epistemic ecologies and the didactic contract. Both groups of students placed some level of importance on the content and the knowledge that the group could assemble in situ to complete the task. One could say that this focus on content-related outcomes initiated a *didactic contract* such that *learning trajectories* were created for each member of the triad in each group. The *epistemic positions* of the participants in each group varied, however, since the students in the gymnastics task were assigned the role of ‘coaches’ they were automatically placed in the position of knowers. This topogenetic state did not exist in the golf example as all three students were afforded the opportunity to situate themselves as knowers and the epistemic positions were ‘acted out’ or ‘embodied’ such that a knower and unknowers emerged during action.

Engaging Learners

What is unclear from these theoretical perspectives are the mechanisms by which students choose to place importance on the task and thus engage with the intended content. Why, for example, are there periods of content acceleration and stagnation when students are very engaged and less engaged in the content to be learned? Slavin's (2015) theoretical perspective of planning group goals and promoting individual accountability provides a useful lens to interpret this issue. Group goals differ from lesson objectives or learning outcomes that are often used to guide teaching and/or signify what a class or individual students should be able to do by the end of the lesson. A group goal is an indicator of a group's success. This reward is based on the group's achievement and not an individual student's success. In PE, group goals might involve completing a group quiz or a group project, creating a group dance routine, navigating an orienteering course as a group, or successfully outwitting opponents in a game-based situation. Unlike in the symbolic interactionist approach in which students are thought of as learners 'by default' who will automatically attempt to increase their knowledge, the incentives approach suggests that learners require encouragement, possibly in the form of competition, in order to learn.

It was clear from the discussion around incentives that group goals help individuals to focus on improvement and learning. If the task is structured correctly, the group's success will be dependent on the learning of each individual team member (Slavin, 2015). Individual accountability can be embedded into group goals and/or tasks by a measure of assessment. In the empirical example, each group member's learning and performance in shot putting was individually assessed as their individual improvement score was recorded and required for the group to gain the greatest group improvement score (i.e. the group goal). Slavin (1996) suggests that individual accountability can also be embedded in assessments of learning. For example, a group member might be selected at random to represent the group's learning, and

the whole group could be rewarded based on the selected member's performance (Slavin, 1996). The 'take home message' from Slavin's perspective on Cooperative Learning is that there needs to be measures in place to assess each individual's learning and each individual's learning needs to be related to the group goal.

The Teacher's Role

In all perspectives, while it was not explicitly stated, the teacher played a central role in group work by orchestrating a social and cultural environment for learning. This was seen through, for example, the provision of resources, allocation of student roles, and the determination of content and group goals. According to the JASD framework, how the teacher orchestrates a learning environment represents the didactic milieu, a 'set of evolving conditions' that the teacher has purposefully selected to support learning. Beyond the creation of a learning context for group work, however, there was limited focus on teachers' actions and interactions with groups and/or students during group learning tasks. This is not only a limitation to the theoretical perspectives outlined in this paper but within pedagogical research more broadly (Gillies et al., 2008), and within physical education more specifically (Goodyear & Dudley, 2015). Given the concept of *consequentiality* – outlined in the symbolic interactionist perspective – and the understanding that individuals' interactions impact on their own and others interactions (Goodwin, 2000), it seems vital that an understanding of how the teachers' interactions can positively impact on group-based learning is further explored.

The JASD framework provided some useful insights into teacher behavior that are worthy of further consideration. In particular, the concepts of 'joint action' and topogenesis show how teachers and students share responsibilities for learning within group work. This concept is akin to considerations around teachers becoming co-learners and co-participants with their students i.e. when teachers also become learners and when students also become

413 their own teachers. An example of when teachers become co-learners can occur in instances
 414 when students are not able to perform a skill and/or – as symbolic interactionist perspective
 415 highlighted – when ‘knowers’ might need assistance in getting their instructions interpreted in
 416 ways that facilitate their peers’ learning. In these instances, the teacher needs to firstly
 417 interpret the learning context from their students’ perspective (i.e. become a learner) and then,
 418 if appropriate, be willing to adopt a higher topogenetic position (i.e. become a teacher) within
 419 the group. In adopting the role of the learner, teachers should be able to diagnose their
 420 students’ learning and learning needs and may question or simply observe the group’s
 421 learning (Goodyear & Dudley, 2015). Following this diagnosis of learning needs, teachers
 422 may then respond by engaging in a range of mediated interactions that could include
 423 refocusing students’ attention, technical prompts or offering specific guidance (Gillies, 2008).
 424 In addition, teachers may make changes to the didactic milieu by altering the spatial
 425 organization of the group in order to facilitate more conducive student interactions.
 426 Importantly however, and dependent on the initial diagnosis of learning, an effective
 427 intervention may involve no teacher interaction or changes to the didactic milieu. Certainly,
 428 while there was a misalignment in the didactic contract in the Pinball illustration, the teacher
 429 could have decided not to intervene in order to focus on social and affective learning
 430 outcomes of Sport Education.

431 It should also be noted that a common misconception with teacher behavior is that
 432 teachers should only interact with groups if students face a barrier to their learning, there is a
 433 *stagnation* to group-based learning, or there is a misalignment of the didactic contract
 434 (Goodyear & Dudley, 2015). It might be suggested, therefore, that teachers can adopt a higher
 435 topogenetic position in group work as a means to advance the learning outcomes that can be
 436 achieved from group work. For example, although the teacher was not active within the
 437 incentives approach illustration, the teacher could have interacted with this group to enhance

their shot putting and/or to strengthen their ability to offer guidance and support. This final point concerning teacher-group interaction highlights the importance of teachers becoming co-learners. To effectively support and advance learning, teachers need to be engaged in an on-going assessment of their students' learning and their learning needs in order to understand if, how, and when to interact with groups or alter group dynamics.

Group Composition

JASD, symbolic interactionist and member status perspectives encourage educators to consider group composition and its relation to learning in more detail. If knowing is the result of social interaction then the learning of individuals and their performances in assessment tasks will be crucially affected by those around them. This is an important point given that groups are often formed in an ad hoc manner (Casey & Dyson, 2012). Unfortunately the complexities of group work are difficult to navigate for teachers because many of students' previous social experiences may be unknown. As exemplified in the Sport Education game sequence, power dynamics within the Soaring Eagles team convinced the low status pupils that they were less valued in the group, which progressively decreased their interaction and engagement in the group. While it is unclear whether their physical skills improved, they certainly learned that status through popularity was necessary for making decisions in their PE class. Unlike the other perspectives, the member status perspective encourages educators to consider group composition in terms of interpersonal and biographical terms. Considering status can help teachers judge when to intervene during group interactions, and when a teachable moment can be discretely, but deliberately brought to the attention of all groups. In a sense, the perspective encourages educators to take a more cultural and longer-term perspective on students' interactions than say, the symbolic interactionist perspective that positions local knowledge as the key determinant of social interactions.

Several additional points relating to group composition can be made here. While an incentives approach does not foreground student status in the classroom, it does attempt to implicitly moderate the influence of status during group work. By trying to ensure that students contribute equally to the completion of the task, an incentives approach encourages the spread of decision making opportunities and could help to avoid the kinds of situations that the low status pupils in the Soaring Falcons experienced. Second, although it may be difficult to know the individual histories and biographies of all students, teachers may be aware of the kinds of factors that influence status within a given school. It may be impossible to eradicate all traces of status in groups (since status is, in effect, a relative concept) but it may be possible to ensure that the same kinds of factors that influence status are not constantly reinforced by teaching practices. A teacher might for example, change group composition frequently so that students interact with different students. Or in line with JASD and symbolic interactionism, a teacher may use tasks that rely on different types of knowledge. Finally, a status approach suggests that it could be useful to elicit feedback privately from students about their experiences. This can be accomplished by a comment box or even a written assignment in conjunction with a classroom teacher which could help teachers to gather information that will help them build detailed pictures of the interpersonal landscapes of their gymnasium.

Summary and Conclusions

In this paper, we have examined the basic assumptions that underpin four theoretical approaches to group work. Along with descriptions, we have provided illustrations of how each theory has been used to make sense of group work practice. In the second part of the paper, we turned our attention to the connections that exist between these theories and considered the pedagogical relevance of these intersections. Building on a proposition from Slavin (1996, 2015), our general contention has been that researchers and educators stand to

gain from acknowledging the complementarity of theoretical approaches. We would like to finish by emphasizing implications for researchers and physical educators and adding some concluding thoughts. Our intention is to avoid being overly prescriptive while still identifying issues that deserve consideration when researching or teaching in group work situations.

First, by moving between theories, both scholars and educators can become sensitized to groups' individual characteristics. Scholars and educators can see how different factors such as conceptions of status and content knowledge combine to influence interactions. For researchers, an 'inter-theoretical' approach results in potential to develop more nuanced pictures of what is going on in empirical material. Similarly, for educators, this kind of multi-perspectivity promotes a more systematic evolution of pedagogical practice such that if challenges arise, alternative strategies may be attempted.

By examining the interconnectedness of different perspectives, researchers and educators also stand to gain 'reflective distance' and the possibility to consider their conceptions of group work in new ways. Assuming that measurement is necessary for learning for example, supports quite different pedagogies compared to assuming that students have an intrinsic desire to learn. In any situation though, teachers have different kinds of students with different motivations and so forth. To achieve a good match between pedagogy and learners, it is necessary to think with different frameworks. Similarly, as researchers develop explanations of group work, they should be cognizant of their own taken for granted assumptions. By being aware of these assumptions, researchers can create space for new ways of understanding group interactions.

Some descriptions of group work have downplayed the importance of teachers' roles in group work (see for example, Barker et al., 2015a). Thinking 'inter-theoretically' alerts us to the variety of tasks that teachers are involved in during group work. Further, it suggests that teachers play important roles in practically all phases of group work, regardless of whether

they are interacting directly or indirectly with students. By selecting content, structuring tasks in terms of equipment and level of difficulty, and assigning individuals to groups for example, teachers have considerable potential to exercise their pedagogical expertise and influence group work situations. From a research perspective, the roles that teachers play during group work cannot be ignored in analysis. While teachers may not directly appear in the picture, their significance needs to be factored into explanations of how and why students are acting as they are.

Fourth and related, when teachers move between theoretical explanations, they can frame or position students in different ways. In other words, they provide students with different possibilities for being and acting. If we see learning as a process that necessarily involves developing new ways of being/acting (see Quennerstedt et al.'s [2014] discussion of a participation metaphor of learning) then provision of such possibilities is crucial.

We would like to finish with some brief reflections. First, although researchers have tended to take mono-theoretical approaches to group work, there is little evidence to suggest that practitioners are guilty of the same offense. Our impression is that while educators may not use formalized, explicit theories to guide their work, they tend to be more flexible, moving between different personal ways of understanding group work and learning. This is an unexplored proposition, however and is an area that deserves further investigation. More generally, a number of the arguments that we have made for this meta-theoretical consideration of group work theory could be just as easily made for other aspects of learning theory. As the place of learning theory in physical education has grown in recent years (Quennerstedt, et al. 2014), it would be useful to examine the underlying assumptions and how different approaches and theories complement one another. Finally, we are aware that other theoretical approaches to group work exist that we have not examined here. Lafont's sophisticated work on group dynamics from a social psychological perspective for instance,

537 has not been included (Lafont, 2012; Lafont et al., 2007). Barker and Quennerstedt (in press)
538 also provide a novel reading of group work using Foucauldian theory. The objective of the
539 paper was not to provide a comprehensive picture of scholarship on group work but rather to
540 show how theoretical approaches can complement one another. The challenge now is to see
541 how inter-theoretical approaches can be extended in both research and practice.

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653 Figure 1: Slavin's (2015, p. 7) Model of Cooperative Learning Effects on Learning

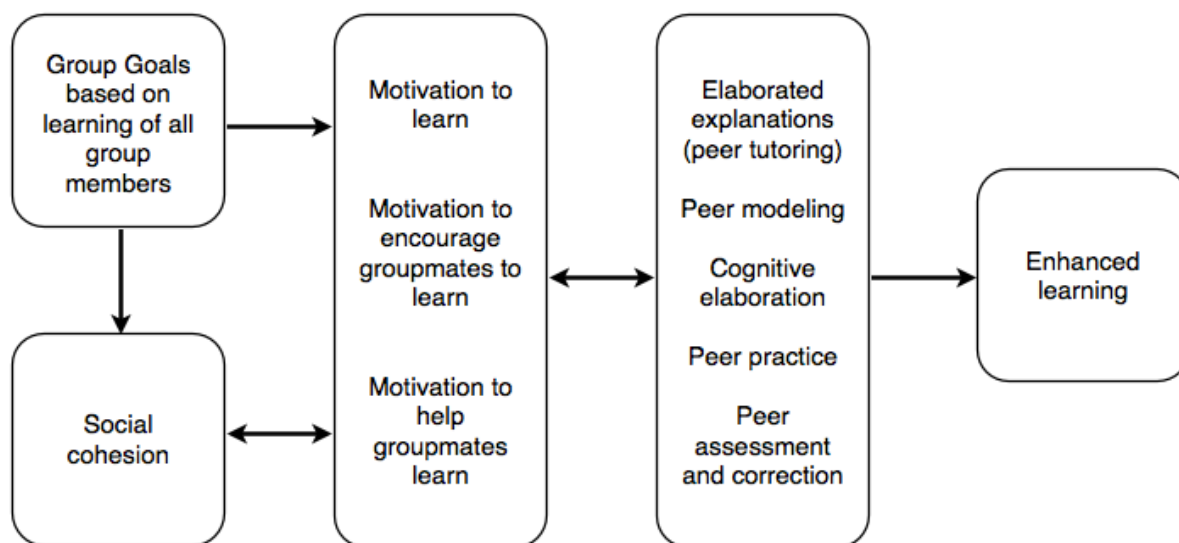


Figure 2. Summary of Theoretical Emphases of each Framework in relation to Four Pedagogical Themes

	JASD	Symbolic Interactionism	Student Status and Privilege	Group Incentives
Content Knowledge	Forefronts content as the driving force of teacher-learning interactions	Situates content as the medium by which learning trajectories are created. Nature of content dictates epistemic positioning	Specific content is often hidden within student interactions	Contingencies provided for group-based content development
Engaging Learners	Assumption that content initiates student engagement with task and didactic contract	Nature of content is critical to establishment of engaged learning trajectories	Engagement of learners dependent on relative status within group	External accountabilities are necessary to maintain engaged learning
Teacher's Role	Initiates and is responsible for process of didactic transposition	Nature of consequentiality suggests how teachers interacts with the group facilitates epistemic positioning	Teacher's actions often hidden from specific interactions, yet task design and student roles often a priori teacher decisions.	Teacher actions required to initiate and sustain accountability for group performance
Group Composition	Decisions on group composition often hidden from discourse on evolution of content	Identities of group members made apparent through symbolic interactions	Group composition viewed as critical to learner engagement within tasks	Incentives provided to overcome group member differences and group composition challenges.